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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/678,395      | 10/03/2000  | Scott D. Tanner      | 571-669             | 4595             |

1059 7590 03/14/2002

BERESKIN AND PARR  
SCOTIA PLAZA  
40 KING STREET WEST-SUITE 4000 BOX 401  
TORONTO, ON M5H 3Y2  
CANADA

EXAMINER

HASHMI, ZIA R

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

2881

DATE MAILED: 03/14/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/678,395

Applicant(s)

TANNER ET AL.

Examiner

Zia R. Hashmi

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 October 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 October 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 drawn to the apparatus and method claims 6-10, are rejected under U.S.C. 103 (a) as being unpatentable over Mordehai et al. ( 5,672,868 ), in view of Takada et al. ( 5,481,107 ).
3. With respect to independent claims 1 and 6 and dependent claims 4-5, 7 and 10, Mordehai et al. disclose method and apparatus of a mass spectrometer ( Abstract, lines 1-2 and col. 9, lines 14-15 ), comprising of an ion source ( Abstract, line 3, col. 4, lines 40-41, and col. 7, lines 9-10 ), an ion interface ( Abstract, line 3 and col. 4, line 34 ) for passing the ions into collision region, a gas region ( col. 6, line 56 ) for reaction/collision of the molecules involved ( col. 6, lines 56-57, 62-64, and col. 7, lines 15-16 ), and a mass analyzer downstream from the collision region ( col. 4, lines 55-58 and col. 5, lines 6-8 ) for mass analysis of ions by mass spectrometer ( col. 7, lines 30-31 ). Mordehai et al. also disclose an electrostatic lens for deflecting the ions so as to achieve ion-neutral particle separation ( col. 2, lines 54-57 ). Furthermore, the decoupling of ions and neutral particles in their system takes place between ion interface referred above and

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the reaction collision region ( area close to items # 8 and 12 in Figs. 1 and 6 ) thereby allowing ions to pass in the collision region ( col. 7, lines 30-31 ).

4. With respect to claim 9, Mordehai et al. disclose a method of operating a mass spectrometer which includes generating ions at atmospheric pressure ( col. 3, lines 19-20 and col. 4, lines 40-41, 55-56 ), passing the ion stream through an aperture ( col. 3, lines 42-45 and item # 12 in Fig. 1 and 6 ) into a volume maintained at sub-atmospheric pressure ( col. 6, lines 50-52 and 60-62 ), thereby to generate an aerodynamic jet ( col. 4, line 54, col. 7, line 23 and lines 39-40 ), wherein step of separating neutral particles from the ions ( col. 8, lines 48-49 ) includes obstruction or a restriction to particles ( col. 7, lines 6-7 ), thus reducing the kinetic energy of the neutral particles

1. as well as ions ( col. 6, lines 62-65 ), and preventing the neutrals passage into reaction/collision area while the ions focus toward the main ion optical axis ( col. 9, lines 1-2 ).

5. With respect to claims 1, 6, 2-3, and 8, Mordehai et al. fail to disclose an ion-neutral decoupling device comprising of a or a plurality of plates with offset apertures with respect to one another, so as to prevent direct passage of neutral particles or any of the variant embodiments describes in claim 2. Takada et al., however, disclose offset apertures ( col. 3, lines 7-10, lines 25-26, col. 4, lines 50-51, items 15a and a5b in Fig. 1, and item 19 in Figs. 2-7 ) and method and apparatus of electrostatic deflection of ions ( col. 4, lines 58-60 and lines 65-67 ).

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Mordehai et al. method and apparatus described above

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in a manner disclosed by Takada et al. so as to provide an ion-neutral decoupling device located in between the ion interface and reaction/collision cell, comprising of a plurality of plates including apertures offset from one, located in an ion optics compartment, so as to prevent direct passage of neutral gas particles by electrostatic deflection of ions, or a plurality of pairs of rods provided with slots for passage of ions and offset so as to interrupt passage of neutral particles, or electrostatic or magnetic deflectors, or any variant of design described in claim 2, because Takada et al. teach that by offsetting axes, uncharged portion of a beam can be prevented from flowing into mass analysis region ( col. 3, lines 10-13 ).

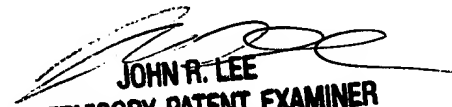
### ***Conclusion***

1. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Okamoto discloses ( 5,049,739 ) a mass spectrometer in which ions and neutrals are separated by resonance charge exchange reactions.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zia Hashmi whose telephone number is (703) 305-0419. The examiner can normally be reached between 8.30 AM- 5 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (703) 308-4116

Zia Hashmi

March 6, 2002

  
**JOHN R. LEE**  
**SUPERVISORY PATENT EXAMINER**  
**TECHNOLOGY CENTER 2800**